

STRUCTURE COMPRISING AN AMORPHOUS CARBON FILM AND METHOD OF FORMING THEREOF

ABSTRACT OF DISCLOSURE

A semiconductor device includes a semiconductor substrate, a film stack formed on the semiconductor substrate and having a film to be processed. A dual hard mask included in the film stack has an amorphous carbon layer and an underlying hard mask layer interposed between the amorphous carbon layer and the film to be processed, the hard mask layer does not include an amorphous carbon layer. A damascene structure for a metal interconnect is formed in the film stack. The amorphous carbon film can, for example, be incorporated within a single damascene structure, or a dual damascene structure. The amorphous carbon film can serve as part of a lithographic mask for forming the interconnect structure, or it may serve as a top layer of a dual hard mask, a chemical mechanical polishing (CMP) stop layer, or a sacrificial layer during CMP.